

Comments of Virginia Chesapeake Bay TMDL  
Watershed Implementation Plan Phase I  
September 2010 Draft

A “Ground Level” Point of View  
From the Shenandoah Valley

Narrowly Focused Clean Waterway Public Policy  
Or  
All-Inclusive Environmental Health Public Policy

Submitted by Augusta County Farm Bureau, Inc  
October 28, 2010

Background of Organization Submitting Comments

The Augusta County Farm Bureau is an organization that represents the farm and agricultural interest of over 2,900 local members primarily in the Augusta County Virginia area. Augusta County is second largest agricultural county in the state of Virginia and is located within the Shenandoah Valley of Virginia, the largest agricultural region of the state.

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Introductory Comments

As currently proposed this is a plan that mandates a reduction of nutrients (nitrogen and phosphorus) and sediment from all the uses of the watersheds of the Shenandoah Valley. All of the uses and benefits of our entire natural resources within this valley will be subordinate to the objective of reducing nutrients and sediment for the benefit of the waterways.

This plan is structured to redefine the traditional priority of uses and benefits of our natural resources. The plan establishes nutrient and sediment reduction goals in order to achieve “fishable and swimmable” waterways. These stated goal reductions are mandated to be accomplished regardless of the unintended consequences to our environmental health, environmental safety, and food security.

The plan needs to provide a cost-benefit analysis of the recommended agricultural BMPs to determine if the proposed benefits outweigh the costs.

The plan needs to assess the potential impairments and detriments that the unrestricted conversion of farm land to wildlife habitat will have on health and safety of our local communities.

The preservation of farm land should be one of the highest priorities of this proposed regulation of our natural resources. In Virginia the amount of farm land has been reduced from 15,572,295 acres in 1950 to 8,753,625 acres in 2007.<sup>1</sup>

For the benefit of our local communities this plan needs to include an all-inclusive environmental health priority, an environmental safety priority and an abundant food security priority.

### **TMDL Modeling Comments:**

In the EPA review of the Virginia Watershed Implementation Plan (WIP) the EPA has declared the original draft proposal as inadequate in that it misses the modeled Nitrogen and Phosphorus by 6% and 7% respectively. In natural systems, this is well within an expected variation, therefore the Virginia plan should not be subject to the backup requirements.

The WIP needs to be flexible to allow for changing conditions and look at progressive application. It is also important to note that due to present loads in the system and the nature of nutrients in the system, particularly phosphorus, water quality response will most likely be delayed for sometime after implementation of installation of the BMPs. This is especially true in non-point source evaluation by use of benthic monitoring.

Within the Model TMDL and with future evaluations there needs to be provisions for the inclusion of those BMP improvements that are or have been implemented through voluntary means.

### **Wildlife Nutrient Reduction**

The conversion of farm land to wildlife habitat will increase the amount of nutrients generated by wildlife such as deer and geese. This WIP plan needs to show greater transparency of the wildlife nutrients attributed to land converted to wildlife habitat and implementations that will control these nutrients.

In one watershed (Lower Middle River) in Augusta County, Virginia the amount of direct loading of waste from wildlife exceeds the amount of direct loading from livestock according to Table 5.11 Middle River TMDL study, April 28, 2004.

### **Fish Stocking Nutrients**

The nutrient content of fish manure is similar to other livestock manures. This is according to reaserch by Naylor, S. Moccia, R. and Durant, G. at the University of Guelph, Canada.

Existing and future expansion of nutrient waste from stocking of fish (sources not assessed by WLA) within inland waterways and private ponds should be a component of the existing analysis and allocation of nutrients.

### **Funding and Cost/Benefit of Agricultural BMPs**

This plan needs to establish a priority of the most effective agricultural BMPs to be installed at the most efficient watershed locations.

The source of funding to implement agricultural BMPs needs to be established in order to ensure farm preservation and farm economic viability.

This plan needs to provide adequate funding for continued management and maintenance of the agricultural BMPs.

A cost benefit analysis of the recommended agricultural BMPs should be completed before implementation.

### **Assurance of Existing Standards**

The agricultural portion of the plan relies heavily on the development and implementation of a farm conservation plan. There needs to be an assurance of certainty that if said conservation plan is implemented that the producer will not be subject to additional BMPs or more stringent standards if the milestone values are not attained.

The approach needs to be incentive based, while there may need to be a means to encourage those that have situations that have significant negative impacts on water quality. Planning needs to reflect cost effective approaches to achieve water quality desires.

Any evaluation of the effectiveness of the implementations recommended should consider the length of time needed for the ecosystem to respond to the BMPs.

### **Scientific Reliability and Accuracy of Recommended Ag BMPs**

Agricultural BMPs based on the “best available science” need to be sufficiently field tested to assure the reliability of the results.

This plan needs to provide for the development of agricultural BMPs that reduce nutrient loss while preserving farm land.

### **No stated Accuracy or Reliability of Ag BMPs**

At this time the effectiveness of the agricultural BMPs is based on limited research. The calculations of the nutrient and sediment reduction efficiencies are based on current best scientific estimates. Due to the limited number of field studies, the accuracy or reliability of these agricultural BMPs is not available.

We have confidence that our research and academic communities are capable of determining the reliability of the agricultural BMPs if funds are provided to accomplish such an objective. Adequate field testing of the Ag BMPs is needed to ensure that the reduction of nutrients and the reduction of sediment are positively correlated. If research reveals that certain practices have a negative correlation then implementation of these certain practices may not be advisable.

### Direct Measurement of Targeted Impairments

Nitrogen, Phosphorus and Sediment are the impairments of the waterways that this plan is seeking to control. Yet the impairments of our local watersheds are based on the measurement of E. coli and benthic microinvertebrates. Direct measurement of the targeted goals would seem to be a more accurate method of evaluating the results of the planned implementation practices.

### Soil Organic Matter Component of BMPs

One of the basic principles of soil erosion science states that as the percentage of soil organic matter increases the amount of runoff from rainfall is reduced.<sup>2</sup> Farming practices that increase the percentage of soil organic matter of the soils should be included as an agricultural best management practice.

“Maintaining good soil organic matter levels helps keep topsoil in place. A soil with more organic matter usually has better tilth and less surface crusting. This means that more water is able to infiltrate into the soil instead of running off the field, taking soil with it. When you build up organic matter, you help control erosion by making it easier for rainfall to enter the soil.”

Source: Sustainable Agriculture Research and Education organization (Reducing Soil Erosion, Chapter 13, sare.org)

The prescribed burning of indigenous grasses would remove a source of soil organic matter and be detrimental to soil organic content as compared to pasture that is not burned.

### Livestock Exclusion of Streams Cost Benefit Analysis

Local TMDL modeling studies reveal that the direct loading of bacteria from cattle amounts to less than 1.0% of the total bacteria loadings to the stream. The following table is data from the Mossy Creek Watershed, Augusta County, Virginia TMDL Study dated March 2004

Table 4.15 Annual fecal coliform loadings to the stream and the various land use categories in the Mossy Creek watershed.

Source	Fecal coliform loading (x10 <sup>12</sup> cfu/year)	Percent of total loading
Direct Loading to streams		
Cattle in stream	189	0.4%
Wildlife in stream	12.5	<0.1%
Straight pipes	3.4	<0.1%
Loading to land surfaces		
Cropland	666	1.2%
Pasture 1	48,891	91.3%
Pasture 2	2,622	4.9%
Loafing Lots	852	1.6%
Residential <sup>a</sup>	238	0.4%
Forest	103	0.2%
Total	53,576	

<sup>a</sup> Includes loads received from both High and Low Density Residential and Farmstead due to failed septic systems and pets.

Other streams in Augusta County, Virginia have a direct load deposit from cattle of 0.8% for Upper Middle River and 0.5% for Moffett Creek.<sup>3</sup>

Research by a range livestock management specialist “found that offering water off–site in a trough reduce the number times cattle drank from a nearby stream by 80 percent.”<sup>4</sup>

This plan needs to provide a cost benefit analysis for the recommendation of pasture livestock exclusion of the streams.

### **All-Inclusive Shenandoah Valley Environmental Health Impact**

#### Livestock Exclusion of Streams Health Risk Assessment

Exclusion of livestock by creating riparian buffers would increase the wildlife habitat and the potential reservoir of infection of wildlife diseases.

There about 150 diseases that can be transmitted from wild and domestic animals to humans.<sup>5</sup>

#### Alternative Livestock Watering Beneficial to Herd Health

Research indicates that providing alternative water source for livestock would result in increased weight gains.<sup>4</sup>

#### Adaptation to Climate Change

This plan needs to assess the effects of the anticipated climate change within this region. The anticipated climate change may be detrimental to agricultural rates of production. Additional farm land acreage may be needed in order to sustain current food production levels. If farm

land is converted to forest land, the reversion back to farm land would be costly and cumbersome.

#### Impairment of Human Environmental Health and Safety

The proposed unrestrained conversion of farm land to forest and wildlife habitat introduces significant impairments to the health and safety of the communities of the Shenandoah Valley.

The deer population in Virginia today is estimated to be nearly twice the number of the deer population at the time settlement of Jamestown.<sup>6</sup>

The WIP plan proposes to increase the wildlife habitat regardless of the environmental health impairments to the population that reside in the region. These health impairments would include threats from wildlife diseases such as Lyme disease, West Nile virus and chronic wasting disease. In Virginia the incidence of Lyme disease has increased from 55 in 1993 to 886 in 2008.<sup>7</sup> The incidence of Lyme disease has increased 1500% in Virginia during a 13 year period.

Increasing wildlife habitat for migratory birds would be an environmental health impairment to horses and humans due to the risk of West Nile virus.

Migratory birds are also a factor in the spread of Avian Influenza which is a threat to commercial poultry operations and human health.

Deer/vehicle collisions and wildfire threats from wildlife habitat are additional impairments to the public safety of our communities. In 2009 the two fatalities occurred on public highways within the Shenandoah Valley in which a deer/vehicle collision was a contributing factor to the accident.

BMPs such as grass buffers and filter strips include recommendations to conduct a prescribed burn on regular intervals. Prescribed burning of indigenous grasses introduces an additional safety impairment of uncontrolled wildfires to our communities.

Wildfire risk assessment specific to the Shenandoah Valley should be completed due to the unrestricted conversion of farm land to wildlife habitat.

#### **Priority of Appropriate Watershed Uses**

Agriculture is not included as an appropriate use of the EPA directed designated uses of the watersheds in Virginia. The approved designated uses include aquatic life, fish consumption, public water supplies, shellfish consumption, swimming and wildlife.<sup>8</sup>

Protecting the environmental health, environmental safety and food security of our communities should be a priority of this WIP plan. The preservation of the domestic livestock/grassland ecosystem is the first step in reducing the health risks and safety impairments of the wildlife/forest ecosystem.

This plan needs to be administered by an authority that will include the environmental health, environmental safety and food security of our communities as a priority for the uses of our natural resources.

## **Farm Land Preservation and Farm Economic Viability**

The plan relies on an excessive amount of agricultural land retirement to achieve nutrient reduction objectives.

### **Unlimited Reduction of Farm Land**

Implementation of a variety of Best Management Practices (BMPs) will convert a significant amount of existing farm land to forest land and wildlife habitat. The following is a partial list of farm land conversion to nonfarm uses:

- 1) Retirement of 5% of Agricultural Land (e.g. Conservation Reserve Programs)
- 2) Conversion of 5% of highly erodible agricultural land to forest
- 3) Conversion of farm land to establish riparian forest buffers
- 4) Conversion of farm land to establish riparian grass buffers
- 5) Retirement of farm land attributed to the nutrient trading program

Additional loss of farm land is anticipated due to land being purchased for urban development. Unrestrained conversion of farm land to nonfarm use may be accelerated due to the proposed nutrient trading program.

This plan states that a 35' grass or forest buffer will be implemented on 95% of the waterways in crop and hay lands. Livestock will be excluded from 95% of the perennial waterways. There is no cap or limit of the total amount of farm land that would be converted to nonfarm use. The total amount of farm land conversion to wildlife habitat is unlimited. Financial incentives of nutrient trading may influence landowners to retire an excessive amount of farm land that would result in an impairment of domestic food security. Additional farm land reduction is expected from farms lost to urban development.

### **Nutrient Trading**

Farm land preservation will be significantly impaired by planned financial incentives to retire farm land and unrestrained nutrient trading programs funded by urban developers.

### **Prescribed Grazing Economic Viability**

By the year 2025 a total of 60% of all pasture land will be subject to prescribed grazing practices. The practice of controlled grazing may be very beneficial to the economic sustainability of farm operations as compared to continuous grazing practices.

However the enforcement of minimum pasture heights during adverse weather conditions would require livestock to be removed from pasture areas. If cattle would need to be removed from a specific grazing area this would create an economic adversity to the livestock producer. This would in effect regulate the number of days on pasture in a growing season. If additional pasture is not available, livestock would need to be placed in a confined feeding operation or liquidated.

The typical 180 day grazing season in Rockingham County, Virginia has been cut in half this year due to drought conditions according to the extension service as reported by Daily News Record on October 23, 2010.

The recommended standards for prescribed grazing need to ensure that livestock producers can maintain economic viability.

#### Closing Comments

Unlimited conversion of farm land to wildlife habitat would threaten economic sustainability of the agribusiness infrastructure of this region. Proposed conversions of farm land have the potential to significantly alter the land base and as a result adversely impact the most important economic sector of the rural community.

The WIP is much broader than just a water quality plan in that it sets the land management standards for the watershed. In that these are coupled so closely, it is imperative that as part of the consideration the resultant socio/economic impacts are factored into the proposed changes that will be the result of a WIP. This all comes as a cost. While grants and other types of funds are spoken of as to be used for implementation, there are only a finite amount of dollars and they will be coming from some other source.

The preservation of the domestic livestock/grassland ecosystem is a vital component of protecting the health and safety of our communities of the Shenandoah Valley.

#### Endnotes:

<sup>1</sup>National Agricultural Statistics Service, USDA

<sup>2</sup>Buckman, H. and Brady, N., The nature and Properties of Soils, Seventh Edition, 227

<sup>3</sup>TMDL Study Middle River and Upper South River, April 28, 2004, Table 5.7, Table 5.8

<sup>4</sup>Veira, D., Meristem Land & Science, Water wisdom boosts cattle performance, Jan. 29, 2003

<sup>5</sup>Tortora, G., et al, Microbiology An Introduction, Fourth Edition

<sup>6</sup>Virginia Department of Game and Inland Fisheries, Deer Fact Sheet

<sup>7</sup>Centers for Disease Control and Prevention

<sup>8</sup>Virginia Department of Environmental Quality